

UNIVERSITY OF MINNESOTA

THAT WAS

Then;

THIS IS

Now

PROGRESS AT THE UNIVERSITY OF MINNESOTA

1986 – 1996

THAT WAS THEN, THIS IS NOW
PROGRESS AT THE UNIVERSITY OF MINNESOTA, 1986 — 1996

The University of Minnesota has worked hard over the past ten years to improve the educational experience of our students while maintaining our excellence in research and service to the state of Minnesota. Our efforts have paid off, and we're pleased to share some of the good news with you.

UNDERGRADUATE EDUCATION

- The Twin Cities campus was rated as one of the 25 "best buys" in undergraduate education among national universities by *U.S. News and World Report* in 1995.
- Number of entering students satisfying the University's preparation requirements (Twin Cities):
 - 1985—17 percent
 - 1995—85 percent
 - (College of Liberal Arts and Institute of Technology—95 percent)
- Mean high school rank for new freshmen:
 - 1986—69.5
 - 1995—73.9
 - (goal for the year 2000: 77)
- In fall, 1996, 73.6% of new Twin Cities freshmen are in the top quartile of their class. (goal for the year 2000: 80 percent of all Twin Cities campus freshmen will come from the top 25 percent of their high school class)
- Students voting with their feet: Freshmen applications are up 20 percent from 1993-1995. Freshman enrollment increased by 824 students.
- Applications for honors programs were up 39 percent in the Institute of Technology and 71 percent in the College of Liberal Arts in the past two years.
- Based on the percentage of admissions applications received to students accepted, the University has gone from last place to third place in "selectivity" in the Big Ten in the past two years.
- Freshmen living on campus (Twin Cities):
 - 1986—45 percent
 - 1995—70 percent

- Class hours taught by full professors (Twin Cities):
 - 1986: 23 percent
 - 1995: 40 percent

- Classes taught by teaching assistants (Twin Cities):
 - 1986: 32 percent
 - 1995: 14 percent

- Average class size: reduced 23 percent on TC campus, 11 percent systemwide.

- Mean class size:
 - 1986—32.6 students
 - 1996—27.7 students

- Largest class in 1986: 1,069; largest class in 1993: 657

- Technology is being used to improve student services, including e-mail for all students and touch-tone telephone and World Wide Web access to key student services such as registration, course drop/add, grade reporting, and financial aid status.

- In fall quarter, 1995, more than half of Twin Cities campus students self-registered using computers, avoiding standing in line.

- Students may now select and purchase classroom texts from the University Bookstores via home computer and have them delivered; if they want to go to the Bookstore—when the lines are short—they can even check the current length of those lines; the Web site's connected to the security cameras, showing a picture that's updated every few minutes.

- Student/advisor ratio in CLA lower division (U's largest college):
 - 1986—577:1
 - 1996—275:1 (a 50 percent improvement)

- In the past two years, students on the Twin Cities campus have increased their average course credit load from 11.8 credits to 12.2 credits.

- In 1986, a few students were invited to establish mentoring relationships with University alumni. In 1996, 1,200 undergraduate students participated in one-on-one or group alumni mentoring programs. (The goal for the year 2000 is to involve 5,000 students in alumni mentoring.)

- Participation in Undergraduate Research Opportunities Program (UROP):
1986—285 students
1996—362 students
- Students assisted by the Office of Special Learning Opportunities to find internships and other field learning experiences
1986: 1,089
1995: 4,000
- On the Twin Cities campus, 378 courses in intensive writing across the curriculum have been added in 66 different academic departments to help students develop better writing skills no matter what their major field
- New degree programs have recently been added in Information Networking and Applied Business, in response to input from the business community.
- Four-year graduation rate (all campuses):
1986 entering class: 9.9 percent
1991 entering class: 18.7 percent
- Five-year graduation rate (all campuses):
1986 entering class—30.7 percent
1991 entering class—41 percent
(goal for the 1996 entering class is 50 percent)

RESEARCH

Since 1968, we have ranked among the top 20 U. S. universities—public and private—in federal funding for research and development. Our goal has been to improve the amount of sponsored funding and to maintain our national ranking. In 1994, the University ranked 14th in federal research and development funding, bringing in \$181 million, up from \$174 million in 1993.

- Total sponsored research funding:
1986: \$152 million
1996: \$304 million
- Benefit for Minnesota: 10,695 Minnesota jobs created as a direct result of federal research funding (US. Department of Commerce figures).

GRADUATE AND PROFESSIONAL EDUCATION

- In 1995, the National Research Council ranked the nation's graduate programs. Based on the scholarly quality of the graduate faculty:
 - Six are rated as "distinguished" (Chemical Engineering, Geography, Psychology, Mechanical Engineering, Economics and Mathematics).
 - 25 are rated "strong."
 - Five are rated "good."
 - Our composite rank is 20th, ninth among public universities.

- Based on the educational effectiveness of the programs:
 - 18 are rated as "distinguished."
 - Our composite rank is 15th, fifth among public universities.

- For the second year in a row, the Carlson School of Management has been ranked number 4 among the "Top 10 Techno-MBAs" by *Computerworld* magazine.

- The Master of Liberal Studies is now offered by the Graduate School and University College. It is a self-designed graduate degree for the adult and part-time learner, especially appealing to mid-career professionals.

- University College now offers post-baccalaureate certificates—concentrated bodies of coursework in specific fields such as Child Abuse Prevention, Organizational and Professional Communication, and Solid Waste Management.

- A new Master of Social Work degree offers a weekend and group independent study option that opens the program to a wider audience.

- Since its beginning in 1993, over 350 doctoral and post-doctoral students have participated in the Preparing Future Faculty Program, which helps teaching assistants and other graduate students develop teaching skills.

DIVERSITY

The University's commitment to a diverse campus community is long-standing. President Hasselmo and the board of regents set goals for 1994 of doubling minority faculty hires, increasing minority enrollment to 10 percent and improving the five-year minority graduation rate by 50 percent .

- Percentage of entering freshmen who are students of color:
 - 1990—11.6
 - 1996—16.0

- Head count for undergraduate students of color:
 - 1990—2,948
 - 1995—4,566

- Bachelors degrees awarded to students of color:
 - 1990—221
 - 1995—425

- Percentage of masters degrees awarded to minority students:
 - 1990—3.6
 - 1995—6.5

- Percentage of new female faculty hires:
 - 1990—27.6
 - 1995—34.7

- Percentage of faculty who are women:
 - 1990—20
 - 1995—24

- Percentage of faculty who are minority:
 - 1990—6.0
 - 1996—10.0

OUTREACH

- Access Minnesota, coordinated by the Minnesota Extension Service, provides internet access at 100 sites in Greater Minnesota. Users may access the World Wide Web by visiting a local MES office, or MES educators will help computer owners connect to the service at their home or business.
- An extensive investment in distance education has brought courses and degree programs to the coordinate University campuses through interactive television, sponsored by University College.
- University College offers courses conducted entirely on the internet, and 80 courses in which students are able to send and receive their assignments through e-mail.
- The Bachelor of Applied Business and Bachelor of Information Networking degrees now offered by University College in partnership with North Hennepin and Inver Hills Community Colleges are workplace-related programs that offer University of Minnesota courses at the community colleges.

GIVING TO THE UNIVERSITY

Private support is critical to enhancing the quality and excellence of the University's teaching, research and outreach programs.

- In 1995, the University of Minnesota ranked 3rd among all public universities in total voluntary support.
- Total gifts received by the University Foundation for the University
 - 1985: \$23 million
 - 1996: \$72 million
- Endowment market value (combined University)
 - 1985: \$248 million
 - 1996: \$955 million
- Number of endowed faculty chairs and professorships
 - 1985: 17
 - 1996: 240
- Gifts received for scholarships for students
 - 1991: \$6.7 million
 - 1996: \$14.1 million

For more information, please browse the University of Minnesota World Wide Web site, <http://www.umn.edu>.

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UNIVERSITY OF MINNESOTA

MINNESOTA'S DRIVING FORCE:

**THE UNIVERSITY OF MINNESOTA'S
IMPACT ON THE ECONOMY**

MINNESOTA'S DRIVING FORCE: THE UNIVERSITY OF MINNESOTA'S IMPACT ON THE ECONOMY

"The most important product of the University of Minnesota is the highly motivated and skilled graduate who enters the workforce and becomes a significant contributor to the State's economy. Other University "products"—discoveries, technologies, ideas and knowledge transferred to industry—are less understood. Yet they have a considerable impact upon our society. ... The economic health of Minnesota will increasingly be influenced by the quality and depth of University of Minnesota research and education programs."
Products of an Unheralded Industry, Minnesota High Technology Council, 1993

Included below are just a few examples of how University discoveries, technologies, ideas and knowledge transferred to business and industry have had a profound, positive impact on Minnesota's economy.

- Graduates of the University's Institute of Technology have founded over 1,000 companies, which provide 85,000 jobs in Minnesota and produce over \$15 billion in annual revenue. Wages in technology-based companies such as these are 50% higher than the average for all private-sector employment.
- Rosemount Engineering, the State's 5th largest manufacturing firm employing 7,500 people, was founded to market a temperature sensor for jet aircraft invented by University scientists.
- Between 1986 and 1992, 214 patents were granted to University of Minnesota researchers—the sixth highest of any university in the nation.
- A recent survey showed that Carlson School of Management graduates founded or own over 2,000 companies in Minnesota. Research is being done to ascertain the impact of these companies in the state. So far, data has been collected about 1,079 of the 2,073 firms. This data shows that these 1,079 companies added \$5.2 billion to the Minnesota economy in 1993, and employed 52,000 people in Minnesota, 219,000 worldwide.
- Almost 80% of the Carlson School's 30,000 alumni have remained in the state, and 53% of them work in management or supervisory positions.
- An example of the impact of Carlson School alumni is Medical Innovation Partners, a venture capital group with 700 employees and revenues of \$80 million that is chaired by a B.S. and M.B.A graduate. The firm offers capital to launch companies and provides management services and assistance in creating business plans. Medical Innovation Partners has helped many Mayo Clinic researchers take medical products to market.

- Another Carlson School graduate founded the Fastenal Company in Winona, which sells 35,000 different types of threaded fasteners and reports annual sales of \$150 million. The company has consistently made Forbes magazine's list of fastest growing small companies in the U.S.
- University varieties make up about 60 percent of the State's \$8 million apple industry.
- The University-based Minnesota Tree Improvement Cooperative has developed forest stock that is faster growing and more resistant to disease. The Cooperative has fostered more than 50 regional tree seed orchards, which provide much of the State's reforestation seed.
- University researchers have bred and released more than 120 varieties of 20 different crops, including soybeans, oats, barley, alfalfa, and wheat. These crops made up 80 percent of Minnesota's agricultural exports in 1990.
- New University strains of corn can be planted 10 days earlier, on average, increasing production by 5 percent and income by \$80 million.
- Nearly all U.S. potato growers rely on disease-free seed potatoes started as tissue cultures using a method developed by University scientists. The Potato Association of America estimates that these cultures have increased yields by 15 to 20 percent. Three billion pounds of potatoes from University-developed varieties are grown annually in the Red River Valley, contributing \$100 million to the Minnesota economy.
- Mastitis, the most costly disease affecting dairy cattle, has been reduced dramatically due to a method developed at the University, preventing an estimated \$10 million annual loss in milk production.
- University research developed strains of soybeans tailored to Minnesota's climate and environment, resulting in soybeans becoming the state's largest cash crop—over \$1 billion a year.
- In 1913, a University professor began developing a process for extracting iron from the rock found throughout Northeastern Minnesota. Years later, when high-quality natural iron ore reserves declined, threatening the economy of that part of the state, two mining companies began producing taconite using the University process. Total taconite production from 1956 - 1995 has been 1.23 billion tons and has been the backbone of the

economy on the Iron Range. In 1995, the total economic benefit to Minnesota from taconite was estimated at \$1.33 billion, and 20,000 jobs depend on the industry. Continued research and development of increasingly efficient mining technologies by the University's Natural Resources Research Institute has allowed the taconite industry to remain competitive with foreign iron suppliers.

- Medtronic, which employs 8,500, was founded by a University electrical engineering graduate who worked with University surgeon Walter Lillehei to invent the first cardiac pacemaker. More than 35 biomedical companies have spun-off from Medtronic, including St. Jude Medical, the leading manufacturer of artificial heart valves. Medtronic and its descendants are credited with forming the core of the Minnesota Medical Alley trade association. In 1992, *Business Week* magazine described Medical Alley as "one of America's new growth regions that is blossoming despite the slump. At the heart of each [center of medical engineering] is often a major research university that acts as a magnet for big operations and entrepreneurs."
- The University's Center for Transportation Studies developed the Autoscope vehicle detection system, which reads traffic flow and transmits this data to allow traffic engineers to regulate ramp meters. This technology was licensed to Image Sensing Systems, Inc., which manufactures the devices currently used on Twin Cities freeways.
- The LINCAGES software program developed by mechanical engineering professors facilitates the design of mechanical linkage devices. A graduate student employed by Honeywell recently used LINCAGES to design an improved oil well pumping mechanism.
- Alpha-M, Inc. of Minneapolis sells a dog halter and leash that improves the owner's control by encouraging natural canine submissive behavior. The product was developed at the University's Center for the Study of Human-Animal Relationships and Environments.
- Two of the most widely-used psychological and educational evaluation instruments in the country are the Minnesota Multiphasic Personality Inventory (MMPI) and the Stanford Achievement Test (SAT). The MMPI was developed and the SAT co-developed by the University.